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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/735,240

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Michael A. Fetcenko

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09/22/2008

ENERGY CONVERSION DEVICES, INC.

2956 WATERVIEW DRIVE

ROCHESTER HILLS, MI 48309

EXAMINER

ROE, JESSEE RANDALL

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

09/22/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/735,240	<b>Applicant(s)</b> FETCENKO ET AL.	
	<b>Examiner</b> Jessee Roe	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 14-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 14-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Status of the Claims***

Claims 1-9 and 14-22 are pending wherein claims 14 and 16 are amended and claims 10-13 are canceled. Applicant's request for reconsideration of the finality of the rejection of the Office Action of 12 May 2008 is persuasive and, therefore, the finality of that action is withdrawn. The previous rejection of claims 1 and 4-9 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cui et al. (Characteristics of magnesium-based hydrogen storage alloy electrodes) is withdrawn in view of the Applicant's arguments.

### ***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 and 14-22 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Zaluska et al. (Nanocrystalline magnesium for hydrogen storage).

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In regards to claims 1-2 and 5, Zaluska et al. discloses magnesium based hydrogen storage material wherein the magnesium would be in the form of nanoparticles (particulate) and additives such as 1 weight percent palladium would be added to the magnesium nanoparticles (page 219, column 1, page 221, column 2, and page 222, column 1). Zaluska et al. further discloses uniformly distributing palladium catalyst particles on the surface of the magnesium based alloy.

With respect to the recitation "in the form of a continuous or semi-continuous layer of catalytic material" as found in lines 5-6 of claim 1, the Examiner notes that because the instant specification does not define semi-continuous to exclude uniformly distributed, Zaluska et al. would read on the claims. Alternatively, Zaluska et al. discloses that it would not be necessary to cover the whole surface of the magnesium based hydrogen storage alloy with an overlayer of catalyst. A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use. MPEP 2123 II.

In regards to claim 3, Zaluska et al. discloses that addition elements such as aluminum have been studied (page 222, column 2).

In regards to claim 4, Zaluska et al. discloses iron particles on the surface of the magnesium (page 223, column 1).

In regards to claim 6, Zaluska et al. discloses discrete regions of palladium (catalytic material) within the magnesium based alloy (page 222, column 1).

With respect to the processing steps of claims 7-9, 14-15 and 17-22, the Examiner notes that the claims are directed to a product and not a process. Even

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though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. MPEP 2113.

In regards to claim 16, Zaluska et al. discloses that the overlayer of catalyst would be of the size of tens of nanometers (the size of hundreds of angstroms) (page 221, column 2). Zaluska et al. further discloses that the hydrogenation would be impacted by the thickness and degree of uniformity of the overlayer of catalyst (page 221, column 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the degree of uniformity and/or the thickness of the catalyst layer in order to achieve the desired hydrogenation (dehydrogenation) performance. MPEP 2144.05 II. Furthermore, the Examiner notes that although the thickness of the catalytic layer as disclosed by Zaluska et al. may be greater than that of the instant invention, merely changing the thickness of the catalytic layer would not establish patentability over a prior art product. MPEP 2144.04 IV(A).

Claims 1-2, 4-5, 14-15 and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welter et al. (US 4,613,362).

In regards to claims 1-2 and 4, Welter et al. ('362) discloses a magnesium-based granulate with iron homogeneously distributed over the surface of the granulate particles.

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Welter et al. ('362) further discloses that the maximum quantity of iron would be at most 20 weight percent (about 9.8 atomic percent). Therefore, the minimum amount of magnesium would be 80 weight percent (about 90.2 atomic percent) (col. 2, lines 45-65). Although Welter et al. ('362) does not specify the degree (continuous or semi-continuous) to which the iron particles would be distributed on the surface, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the iron distribution (by using more or less iron) to achieve the desired catalytic effect because Welter et al. discloses a homogeneous distribution (col. 4, lines 20-36). See MPEP 2144.05 II.

In regards to claim 5, Welter et al. ('362) disclose using steel instead of iron (col. 4, lines 37-43). Carbon would inherently be present in steel.

With respect to the processing steps of claims 14-15 and 17-22, the Examiner notes that the claims are directed to a product and not a process. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. MPEP 2113.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Welter et al. (US 4,613,362) as applied to claims 1-2 above, and further in view of Sapru et al. (US 5,976,276).

In regards to claim 3, Welter et al. ('362) disclose a magnesium-based storage

material as shown above, but Welter et al. ('362) do not specify wherein the magnesium-based storage material would include aluminum.

In the same field of endeavor, Sapru et al. ('276) disclose doping or alloying magnesium with aluminum in order to improve reaction kinetics during hydrogen storage (col. 3, lines 1-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the magnesium-based storage material, as disclosed by Welter et al. ('362), by doping or alloying the magnesium-based storage material with aluminum, as disclosed by Sapru et al. ('276), in order to improve the reaction kinetics during hydrogen storage, as disclosed by Sapru et al. ('276) (col. 3, lines 1-22).

### ***Response to Arguments***

Applicant's arguments filed 9 September 2008 have been fully considered but they are not persuasive.

The Applicant primarily argues that Welter et al. ('362) does nothing to concentrate the iron particles on the surface of the magnesium and the Applicant's compute that only about 2.4% of the surface particles are iron and that this would not be "continuous" or "semi-continuous" as instantly claimed. The Applicant makes a similar argument that with an upper limit of 20 weight percent iron, that 5.24 volume percent at the surface would not be "continuous" or "semi-continuous".

In response to these arguments, the Examiner notes that neither the claims nor the instant specification define a density per area of desorption catalyst as corresponding with the language “continuous” or ‘semi-continuous’. Furthermore, during examination, claims must be given their broadest reasonable interpretation. MPEP 2111 and 2111.01 I and III. In the absence of an express intent to impart a novel meaning to the claim terms, the words are presumed to take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art. Therefore, the homogenous distribution of particles disclosed by Welter et al. (‘362) would be read as at least “semi-continuous” to one having ordinary skill in the art.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessee Roe whose telephone number is (571) 272-5938. The examiner can normally be reached on Monday-Friday 7:30 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Dr. Roy V. King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John P. Sheehan/  
Primary Examiner, Art Unit 1793

JR